MORBIDITY INDICATORS

AVAILABLE THROUGH GOVERNMENT SOURCES

in KAZAKHSTAN

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I. Summary:

The authors recently completed a compilation of health sector indicators in four Central Asian countries. While the volume of morbidity data precluded its collection in each country, Gorkij Sabyrov, Head of the Department of Medical Statistics, and his staff assembled morbidity data for Kazakhstan from 1991 to 1993. This report summarizes the data. Software for further analysis of the data is available.

A. General Findings

Two/thirds of the cases reported fall into five of the seventeen broad categories of disease defined in the system for international classification of diseases (ICD-9).

LEADING CAUSES OF MORBIDITY, 1993

	cases per 1000	cumulative % total	% change since 1991
Всего All Categories	928		2%
органов дыхания Respiratory System	322	35%	2%
Болезни нервной системы ии органов чувств Nervous system and sense organs	99	45%	6%
Болезни органов пищеварения Digestive System	92	55%	5%
Болезни системы кровообращения Circulatory System	60	62%	2%
Травмы и отравления Injury and Poisoning	58	68%	-4%

Data was not available to isolate the most common conditions contributing to the first three categories. Hypertension and ischemic heart disease, with a rate of 28, account for nearly half of the circulatory system category; and wounds, superficial injuries, and contusions, with a rate of 31, account for more than half of the injury and poisoning category. (Attachment 1 includes a table with 1993 rates for all disease categories.)

The overall morbidity rate has increased by 2% between 1991 and 1993. Change within the five leading categories has also been fairly modest. Nationwide, the rates for two categories increased noticeably: perinatal conditions increased by 66% (to 2); and diseases of the blood increased by 20%, primarily due to anemia, which increased by 40% (to 12).

Officials have observed that when time is critical, as in delivery, delay in seeking care can significantly increase the likelihood of a negative outcome. Large increases in the cost and difficulty of obtaining transportation have led patients to defer seeking care as long as possible, especially in rural areas where transport problems are severe. While the perinatal rates in urban oblasts have increased by some 20-50%, rates in the rural oblasts have often increased by ten times that amount; in Tourgaiskaya the perinatal rate increased by 1100%.

Fairly high rates of anemia are found in many parts of the former Soviet Union (fSU); the underlying reasons, as well as the implications for service delivery, remain a matter of some debate. Given the increase in anemia rates between 1991 and 1993, it would be useful to look at a longer trend period. Data for 1989 and 1990 are available, and 1994's should be available soon. Rates for anemia have increased in both urban and rural oblasts, with the largest increases in the population over 14 years of age. Kzyl-Orda has the highest rate of anemia; at 45, it is three times the national rate.

The highest morbidity rates are recorded in urban oblasts, but this does not necessarily mean that the incidence of disease is substantially higher than in rural areas. (Attachment 1 includes a table with 1993 rates for all disease categories.) Enhanced access to service, as well as biases in the reporting system itself, lead to the capture of more cases of disease in urban areas. Using some rough adjusters, oblasts with substantially higher rates for specific disease categories can be identified. For example, West Kazakhstan's rate for digestive disease, 304, is three times the national average; and the rates of onset for neoplasm in East Kazakhstan and Dzhezkazgan are both more than 50% higher than the national rate.

B. Recommendations

The reporting system, designed during the Soviet period, appears to capture data accurately. The primary constraint is that the data reported are not adequate to manage the care delivery system more efficiently, or to understand some of the underlying disease patterns. Collecting the necessary data means reengineering the data collection system. Since no funds have been budgeted for this task, the data is unlikely to be available through the routine reporting system in the near future. A sample drawn from facilities' current records could provide a snapshot of the current situation. In the absence of a more robust routine system, a sentinel surveillance system might provide ongoing information for routine management.

II. Sources of Morbidity Data

While this report focuses on the information system and data available in Kazakhstan, the system is likely quite similar in the other Central Asian countries. From 1989 onwards each country adopted a unified disease reporting system according to guidelines established by the central Soviet government. This system remains largely unchanged in the Central Asian countries.

By the time the unified system was established, several specialty groups had begun to collect morbidity data pertinent to their interests. These specialty reporting systems remain in place. For example, infectious disease data are reported through the Division of Epidemiology and Sanitation (SES), which is no longer a part of the Ministry of Health (MoH); data on neoplasms are channeled through the national cancer hospital. The unified morbidity system, the primary source of morbidity data for the MoH, includes only summary totals for these specialties. (All of these systems report true cases; follow-up treatment is not reported as a new case.)

SES collects information on infectious diseases at weekly, monthly, quarterly, and annual intervals; it also has a 24-hour emergency alert system. SES analyzes rates and trends weekly and makes reports available to the MoH. The MoH, through its unified system, collects data from all of its facilities (including outpatient points) and prepares annual morbidity summaries by oblast. Data are reported in three age groups: 0-14 years; 15-17; and 18 and over. For each age group, the number of cases, number of first lifetime occurrences, and number under treatment at the end of the year are reported, using the international standard ICD-9 classification system. Gender specific rates are not available in the unified system, nor are other age distributions, but specialty groups, like the Maternal and Child Health (MCH) department and the national cancer hospital, may have this type of data.

The Annual Statistics Reports published during the Soviet period and by its successor states have focused on the number of first lifetime occurrences. This indicator is useful for assessing disabling or chronic conditions but less useful than the number of cases for understanding the total disease burden or the impact of treatment of chronic conditions. There has been little analysis of trends or of population-based case rates in the unified system.

III. Data Confounders

Two aspects of the unified morbidity reporting system confound analysis and interpretation of the data. The first affects the disease counts themselves, and the second limits analysis of disease patterns.

Data collection protocols result in undercounts of disease episodes in some situations. Morbidity data reported through the MoH must have a diagnosis attested by a physician. Outreach service teams may not include a physician, and the cases they treat without a physician's diagnosis are not included in the MoH statistics. Morbidity rates for diseases that might be treated by a physician in an urban area, but by midlevel personnel in an outreach setting, may be underestimated. This reporting protocol also confounds comparison of disease patterns among oblasts. In rural areas, a substantial amount of care may be delivered by nonphysicians; the diagnoses that these practitioners make are not recorded in the MoH data.

The urban and industrial oblasts definitely report higher morbidity rates than rural oblasts. (See Attachment 1 for a complete list of 1993 oblast rates.) Almaty Municipality has the highest; at 1661, it is 79% higher than the national rate. Its rate may be artificially inflated by peopie seeking care directly at national facilities rather than following the normal referral process. Six other oblasts have rates between 1000 and 1250, and all are urban and industrial: East Kazakhstan, Karaganda, Semipalatinsk, West Kazakhstan, and Pavlodar. By contrast, five oblasts have rates between 500 and 750; all have large rural populations: Tourgaiskaya, South Kazakhstan, Taldykourgan, Koustaniskaya, and Atyrauskaya.

These differences probably emanate from several causes.

- better access to care in urban areas, with more disease episodes likely to reach the system;
- omission of episodes encountered and treated by midlevel personnel, a more frequent occurrence in rural than urban areas; and
- there may be noticeably higher incidence of disease in urban and industrial areas.

While all likely contribute to the observed differences, it is difficult to determine their relative importance. South Kazakhstan, which has the second lowest rate in the country, also has a substantial urban population. Comparison of rural and urban rayon in this oblast could help isolate disease patterns distinctive of the urban population.

The second limitation in the data set originates in the way data are aggregated for reporting to the center. Each patient's record has an ICD-9 code recorded as the primary diagnosis. When facilities report their disease data, all cases are included in summary totals for each major ICD-9 category, but subtotals are included for only selected disease groupings.

Since the lower level of aggregation includes only selected diseases, not all, it is not always possible to isolate the major disease contributors within a specific category. The limitations introduced by incomplete aggregation at the subcategory level can be seen in respiratory disease, which has the highest rate and accounts for nearly one-third of cases. Incomplete reporting of contributing subcategories makes further analysis of this general category problematic. In 1993, for example, there were 5.43 million cases of respiratory illness reported nationwide, but the number reported in all of the respiratory subcategories combined was only 0.75 million, or 14% of the total. The data is slightly richer in the next two leading categories, with some 40% of cases reported in the

subcategories. Myopia, with a rate of 20, accounts for 20% of the nervous system cases; and ulcer, gastritis, and cholelithiasis combined account for more than one-third of the digestive system total. (See Attachment 1 for ICD-9 subcategory rates for the five leading categories of disease.)

The national cancer hospital and SES record complete subcategory information for their specialties. Other institutions may also maintain more detailed information. Adding this data to the MoH's unified morbidity system would make the system more useful for analyzing overall disease patterns. Facilities' records might also provide a more detailed data on disease subcategories. Some facilities may independently tabulate all cases at lower levels of aggregation, and the records of these facilities could be sampled.

IV. Data Analysis.

The authors' task was to compile data and provide basic analytic tools. It is hoped that the availability of the data will prompt others to more detailed analysis and interpretation.

The raw data include the number of cases and first lifetime occurrences for each disease classification available, for each oblast, by age category, and population estimates for each group. The statistics for the total population were aggregated from the totals for each age group, and the national statistics were aggregated from the oblast totals.

Data for 1992 and 1993 were already in machine readable form and were directly imported. Data for 1991 were recorded by hand at the ministry and entered into the computer. Data were checked for consistency by comparing the reported totals for each oblast with the sum of each disease category. A few inconsistencies appeared in the 1991 manual data. These inconsistencies, along with some questions regarding teen data and population, are in attachment 2. These questions can be resolved by the MoH and any necessary corrections made in the data. They are minor issues and are not likely to affect analysis of the overall patterns.

Software has been provided to report the number and rate per 1000 population of cases and first lifetime occurrences. The percentage difference between oblast and national rates, and the percentage change between years can also be calculated. The analysis can focus on different disease patterns within an oblast or on differences between oblasts for selected diseases. The data can be viewed on the screen, printed, or sent to another software package for other analysis.

Attachment 1 illustrates the types of tables that can be produced. Differences between oblast and national morbidity rates can help identify oblast patterns that deviate noticeably from national patterns. And the difference between oblast and national overall morbidity can provide a rough index of expected elevation. For example, Almaty Municipality has the highest rate of respiratory disease; at 587, it is 82% higher than the national rate. However, Almaty's overall morbidity rate is

79% higher than the national, so its respiratory rate is within the municipality's general pattern of higher morbidity rates. In contrast, East Kazakhstan, Semipalatinsk, and Leninsk all have respiratory rates with differences from the national average that are at least 10 percentage points higher than the difference between oblast and national overall morbidity rates. In these oblasts the respiratory rates are noticeably higher than the national average, even in the context of generally elevated rates. Using the same technique, Semipalatinsk, Leninsk, East Kazakhstan, Mangystauskaya, and Dzhambyl have notably higher rates of nervous disease; West Kazakhstan, Karaganda, and Kokchetskaya have higher rates of digestive disease; and Almaty has a higher rate of circulatory disease.

The major changes in rates between 1991 and 1993 were noted in the summary, where attention was drawn to perinatal conditions and to anemia. The third largest rise in cases per thousand was in the neoplasm category. Nationwide, the rate increased 15%; Dzhezkazgan registered an increase of more than 300%, and four other oblasts showed increases between 48 and 87%. The increases are in both urban and rural oblasts. The first lifetime onset rate for neoplasm increased by 6% nationwide. Five oblasts showed increases of more than 50%; these coincide fairly closely (but not exactly) with the oblasts whose neoplasm case rate also increased rapidly.

V. Software for analysis of morbidity data.

The software requires Access 2.0 (and Windows 3.1). (Data can be exported through Access to about a dozen different file formats, including xBase and ASCII.) A 486 machine with 8 MB of RAM, and 6 MB of disk space are also required. Cyrillic characters appear as gibberish without basic Cyrillic fonts: Times ET and Futuris.

The software and data are distributed as a self-extracting zip file. Create a new subdirectory on the hard disk and copy the distribution file (kaz_morb.exe) into the directory. Run the file by typing kaz_morb at the DOS prompt. (kaz_morb.exe can be deleted after this operation). Start up Access and load the database kaz_morb. Use of the system should be clear from the instructions on the screen.

All of the "hooks" that an experienced Access user needs to analyze the data independently have been left intact. These appear as menus and icons at the top of the screen and are clearly distinct from the commands used for the morbidity system, which are in the center of the screen, usually in the form of gray and blue pushbuttons. If you are not familiar with the Access system, simply ignore the commands at the top of the screen.

ATTACHMENT 1: SUMMARY MORBIDITY RATES

1. MORBIDITY RATES by ICD 9 DISEASE CATEGORY
2. MORBIDITY RATES by OBLAST
3. RESPIRATORY SYSTEM RATES by SUBCATEGORY
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5. NERVOUS SYSTEM MORBIDITY RATES by SUBCATEGORY
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7. DIGESTIVE SYSTEM MORBIDITY RATES by SUBCATEGORY
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9. CIRCULATORY SYSTEM MORBIDITY RATES by SUBCATEGORY
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12. NATIONAL CHANGE in MORBIDITY RATES by DISEASE
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14. CHANGE in PERINATAL MORBIDITY RATES by OBLAST
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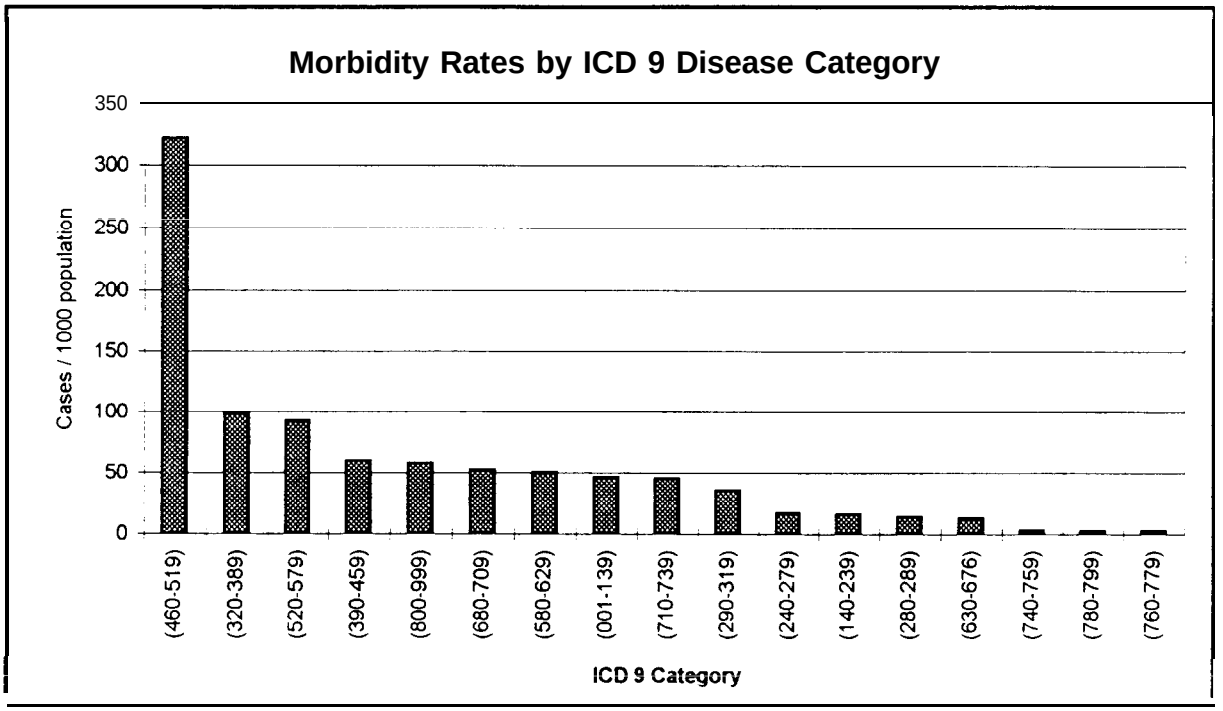
MORBIDITY RATES by ICD 9 DISEASE CATEGORY
Kazakhstan, 1993

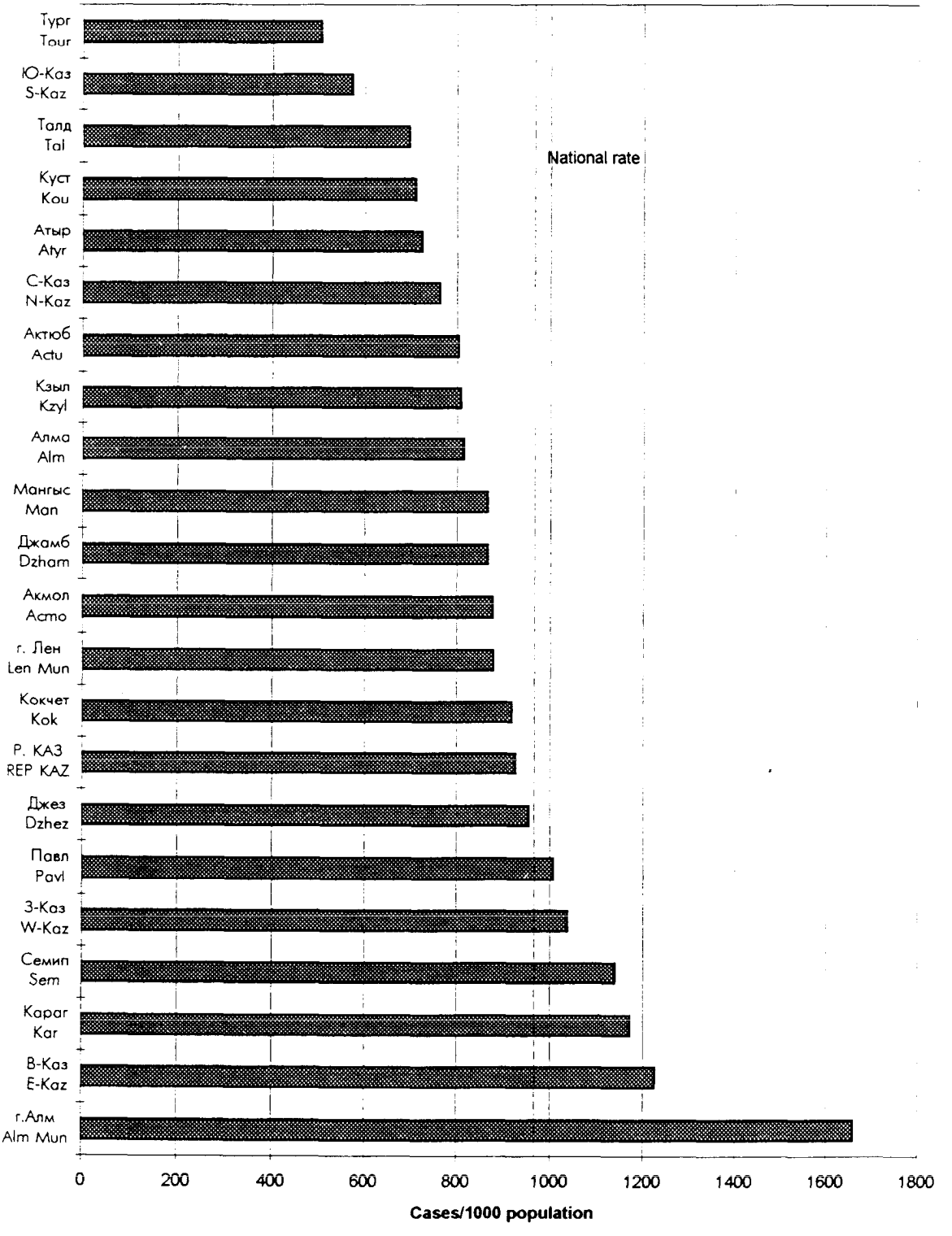
Disease Category	Cases / 1000 population				
	Total Population	Cumulative % total	Adults (>=18 years)	Teens (15-17 years)	Children (0-14 years)
(001-999) Всего All Categories	928		938	705	947
(460-519) органов дыхания Respiratory System	322	35%	223	287	527
(320-389) Болезни нервной системы ии органов чувств Nervous system and sense organs	99	45%	108	102	81
(520-579) Болезни органов пищеварения Digestive System	92	55%	104	77	72
(390-459) Болезни системы кровообращения Circulatory System	60	62%	92	12	5
(800-999) Травмы и отравления Injury and Poisoning	58	68%	70	50	34
(680-709) Болезни кожи и подкожной клетчатки Skin and Subcutaneous Tissue	52	74%	49	53	59
(580-629) Болезни мочеполовой системы Genitourinary System	51	79%	68	29	19
(001-139) Инфекционные и паразитарные болезни Infectious and Parasitic Diseases	46	84%	34	23	74
(710-739) Болезни костно-мышечной системы и соединительной тка Musculoskeletal System and Connective Tissue	45	89%	67	15	8
(290-319) Психические расстройства Mental Disorders	35	93%	46	32	13
(240-279) Болезни эндокринной системы, расстройства питания, нарушения обмена веществ Endocrine, nutritional, metabolic, immunity	17	95%	19	8	13
(140-239) Новообразования Neoplasms	16	96%	24	1	1
(280-289) Болезни крови и крове-творных органов Blood and Blood-forming Organs	14	98%	10	8	22
(630-676) Осложнения беременности, родов и послеродового периода Pregnancy, Childbirth, Puerperium	13	99%	20	1	0
(740-759) Врожденные аномалии (пороки развития) Congenital Anomalies	3	99%	1	5	7
(780-799) Симптомы, признаки и неточно обозначенные состояния Symptoms, Signs, and Ill-Defined Conditions	3	100%	3	2	3
(760-779) Отдельные состояния, возникшие в перинатальный период Conditions in the Perinatal Period	2	100%			8


Morbidity Rates by ICD 9 Disease Category
Cases / 1000 population
350
300
250
200
150
100
50
0
(460-519)
(320-389)
(520-579)
(390-459)
(800-999)
(680-709)
(580-629)
(001-139)
(710-739)
(290-319)
(240-279)
(140-239)
(280-289)
(630-676)
(740-759)
(780-799)
(760-779)
ICD 9 Category

MORBIDITY RATES by OBLAST
Kazakhstan, 1993

Oblast	Cases / 1000 population							
	Total Population	% diff from natl	Adults (>=18 years)	% diff from natl	Teens (15-17 years)	% diff from natl	Children (0-14 years)	% diff from natl
г. Алматы Almaty Municipality	1661	79	1594	70	1786	153	1853	96
Восточно-Казахстанская East Kazakhstanskaya	1227	32	1192	27	1051	49	1342	42
Карагандинская Karagandinskaya	1173	26	1158	23	963	37	1250	32
Семипалатинская Semipalatinskaya	1140	23	1127	20	996	41	1193	26
Западно-Казахстанская West Kazakhstanskaya	1039	12	1092	16	733	4	985	4
Павлодарская Pavlodarskaya	1009	9	993	6	864	23	1066	13
Джезказганская Dzhezkazganskaya	957	3	1085	16	602	-15	784	-17
респ. Казахстан - всего Rep. Kazakhstan - total	928	0	938	0	705	0	947	0
Кокчетавская Kokchetauskaya	920	-1	1005	7	626	-11	795	-16
г. Ленинск Leninsk Municipality	880	-5	652	-30	342	-51	1258	33
Акмолинская Acmolinskaya	878	-5	878	-6	668	-5	918	-3
Джамбылъская Dzhambylskaya	868	-6	859	-8	456	-35	954	1
Мангыстауская Mangystauskaya	868	-6	866	-8	606	-14	914	-3
Алматинская Almatinskaya	816	-12	763	-19	725	3	927	-2
Кзыл-Ординская Kzyl-Ordinskaya	809	-13	807	-14	470	-33	870	-8
Актюбинская Actubinskaya	804	-13	812	-13	529	-25	837	-12
Северно-Казахстанская North Kazakhstanskaya	764	-18	708	-25	695	-1	907	-4
Атырауская Atyrauskaya	725	-22	734	-22	325	-54	778	-18
Кустанайская Koustaniskaya	712	-23	676	-28	635	-10	807	-15
Талдыкурганская Taldykourganskaya	697	-25	769	-18	538	-24	597	-37
Южно-Казахстанская South Kazakhstanskaya	575	-38	564	-40	405	-43	619	-35
Тургайская Tourgaiskaya	506	-45	517	-45	420	-40	502	-47

Morbidity Rates by Oblast
Kazakhstan, 1993



RESPIRATORY SYSTEM MORBIDITY RATES by SUBCATEGORY
Kazakhstan, 1993

	Cases per 1000 population			
	Total Population	Adults 18 and older	Teens 15-17 years	Children 0-14 years
(460-519) органов дыхания Respiratory System	322	223	287	527
(472-473) Хронический фарингит, назофарингит, синусит Chronic pharyngitis, nasopharyngitis, sinusitis	5	6	6	3
(474) Хронические болезни миндалин и аденоидов Chronic disease of tonsils and adenoids	11	6	27	19
(477) Аллергический ринит (поллиноз) Allergic Rhinitis (Pollinosis)	2	2	2	2
(480-483; 485-486) Пневмонии Pneumonia	6	4	4	11
(490-492) Бронхит хронический и неуточненный, эмфизема Bronchitis; emphysema	15	21	6	4
(493) Бронхиальная астма Asthma	3	3	2	1
(494-496) Другие хронические обструктивные болезни легких, Bronciectasis; allergic alveolitis; chronic airwa	1	1	0	0
(510-516) Другие болезни органов дыхания Other respiratory diseases	2	3	3	1

RESPIRATORY SYSTEM MORBIDITY RATES by OBLAST
Kazakhstan, 1993

	Cases / 1000 population							
	Total Population	% diff from natl rate	Adults (>=18 years)	% diff from natl rate	Teens (15-17 years)	% diff from natl rate	Children (0-14 years)	% diff from natl rate
г. Алматы Almaty Municipality	587	82	409	84	986	243	1081	105
Восточно-Казахстанская East Kazakhstanskaya	472	46	302	35	485	69	883	68
Семипалатинская Semipalatinskaya	446	38	309	39	407	42	719	37
Карагандинская Karagandinskaya	414	28	290	30	354	23	735	40
г. Ленинск Leninsk Municipality	396	23	170	-24	151	-48	722	37
Павлодарская Pavlodarskaya	380	18	241	8	401	39	674	28
Алматинская Almatinskaya	333	3	194	-13	292	2	593	13
респ. Казахстан - всего Rep. Kazakhstan - total	322		223		287		527	
Мангыстауская Mangystauskaya	303	-6	210	-6	191	-34	496	-6
Кокчетавская Kokchetauskaya	293	-9	226	2	241	-16	441	-16
Западно-Казахстанская West Kazakhstanskaya	291	-10	172	-23	289	1	535	2
Джезказганская Dzhezkazganskaya	290	-10	239	8	186	-35	402	-24
Северно-Казахстанская North Kazakhstanskaya	289	-10	175	-21	319	11	553	5
Джамбылская Dzhambylskaya	284	-12	186	-17	176	-39	472	-10
Акмолинская Acmolinskaya	277	-14	193	-13	282	-2	470	-11
Актюбинская Actubinskaya	271	-16	189	-15	170	-41	442	-16
Кустанайская Koustaniskaya	260	-19	172	-23	242	-16	470	-11
Кзыл-Ординская Kzyl-Ordinskaya	233	-28	153	-31	91	-68	362	-31
Талдыкурганская Taldykourganskaya	233	-28	188	-15	225	-22	311	-41
Атырауская Atyrauskaya	214	-34	131	-41	122	-58	366	-30
Южно-Казахстанская South Kazakhstanskaya	184	-43	128	-42	124	-57	275	-48
Тургайская Tourgaiskaya	177	-45	115	-48	160	-44	294	-44

NERVOUS SYSTEM MORBIDITY RATES by SUBCATEGORY
Kazakhstan, 1993

	Cases per 1000 population			
	Total Population	Adults 18 and older	Teens 15-17 years	Children 0-14 years
(320-389) Болезни нервной системы ии органов чувств Nervous system and sense organs	99	108	102	81
(343) Дтский церебральный паралич Infantile cerebral palsy	1		1	2
(345) Эпилепсия без психозов и слабоумия Epilepsy	1	1	1	1
(350-359) Заболевания периферической нервной системы Peripheral Nervous System	8	12	4	1
(365) Глаукома Glaucoma	2	4		
(366) Катаракта Cataract	4	6		
(367.1) Близорукость Myopia	14	12	44	14
(381.1-4; 382.1,4,9) Отит хронический Otitis	7	6	11	8

NERVOUS SYSTEM MORBIDITY RATES by OBLAST
Kazakhstan, 1993

	Cases / 1000 population							
	Total Population	% diff from natl rate	Adults (>=18 years)	% diff from natl rate	Teens (15-17 years)	% diff from natl rate	Children (0-14 years)	% diff from natl rate
г. Алматы Almaty Municipality	176	78	183	69	235	130	147	81
Семипалатинская Semipalatinskaya	156	58	182	69	170	67	104	28
Карагандинская Karagandinskaya	128	30	136	27	113	11	112	38
г. Ленинск Leninsk Municipality	127	29	108	0	112	11	154	90
Восточно-Казахстанская East Kazakhstanskaya	119	20	132	22	143	40	84	4
Мангыстауская Mangystauskaya	118	19	135	25	109	7	87	8
Джамбыльская Dzhambylskaya	117	18	119	11	70	-31	120	48
Джезказганская Dzhezkazganskaya	108	9	139	29	68	-33	57	-30
Кокчетавская Kokchetauskaya	105	6	118	9	109	7	78	-4
Павлодарская Pavlodarskaya	103	4	111	3	121	19	82	1
Акмолинская Acmolinskaya	100	1	110	2	110	8	75	-8
респ. Казахстан - всего Rep. Kazakhstan - total	99		108		102		81	
Талдыкурганская Taldykourganskaya	88	-11	102	-5	87	-15	64	-21
Западно-Казахстанская West Kazakhstanskaya	82	-17	79	-27	89	-13	89	10
Кзыл-Ординская Kzyl-Ordinskaya	82	-17	91	-16	65	-36	74	-9
Актюбинская Actubinskaya	75	-24	70	-35	69	-33	85	5
Кустанайская Koustaniskaya	73	-27	69	-36	113	11	74	-9
Северно-Казахстанская North Kazakhstanskaya	70	-30	64	-41	82	-20	80	-1
Алматинская Almatinskaya	69	-31	68	-37	77	-25	68	-16
Атырауская Atyrauskaya	65	-34	67	-38	52	-49	66	-19
Тургайская Tourgaiskaya	60	-39	63	-42	73	-28	53	-35
Южно-Казахстанская South Kazakhstanskaya	54	-45	62	-42	71	-30	40	-51

DIGESTIVE SYSTEM MORBIDITY RATES by SUBCATEGORY
Kazakhstan, 1993

	Cases per 1000 population			
	Total Population	Adults 18 and older	Teens 15-17 years	Children 0-14 years
(520-579) Болезни органов пищеварения Digestive System	92	104	77	72
(531-533) Язва желудка, двенадцатиперст- ной кишки и пептич Gastric, peptic, duodenal ulcer	7	11	1	0
(535) Гастрит и дуоденит Gastritis and duodenitis	16	21	16	6
(536) Гастрит и дуоденит Disorders of function of stomach	1		3	3
(574; 575.0,1; 576.1) Желчнокаменная болезнь, холецистит, холангит Cholelithiasis; cholecystitis; cholagitis	10	13	6	3
(577) Болезни поджелудочной железы Diseases of pancreas	2	3	0	0

DIGESTIVE SYSTEM MORBIDITY RATES by OBLAST
Kazakhstan, 1993

	Cases / 1000 population							
	Total Population	% diff from natl rate	Adults (>=18 years)	% diff from natl rate	Teens (15-17 years)	% diff from natl rate	Children (0-14 years)	% diff from natl rate
Западно-Казахстанская West Kazakhstanskaya	304	229	395	280	190	147	138	92
г. Алматы Almaty Municipality	162	75	169	63	185	142	133	85
Карагандинская Karagandinskaya	150	63	150	44	250	227	134	86
Кокчетавская Kokchetauskaya	129	40	152	46	37	-52	99	37
респ. Казахстан - всего Rep. Kazakhstan - total	92		104		77		72	
Акмолинская Acmolinskaya	92	0	110	6	46	-40	59	-18
Актюбинская Actubinskaya	86	-7	101	-3	41	-46	67	-8
Южно-Казахстанская South Kazakhstanskaya	85	-8	68	-35	72	-6	111	55
Алматинская Almatinskaya	81	-12	93	-10	83	9	59	-19
Семипалатинская Semipalatinskaya	74	-20	83	-20	79	3	56	-23
Мангыстауская Mangystauskaya	73	-21	88	-15	68	-11	44	-39
Джезказганская Dzhezkazganskaya	68	-27	84	-19	39	-49	43	-41
Павлодарская Pavlodarskaya	67	-28	80	-23	51	-33	40	-45
Восточно-Казахстанская East Kazakhstanskaya	66	-29	77	-26	42	-46	42	-42
Кзыл-Ординская Kzyl-Ordinskaya	64	-31	64	-38	52	-32	65	-10
Джамбыльская Dzhambylskaya	56	-40	58	-44	29	-62	56	-22
Атырауская Atyrauskaya	49	-47	50	-52	21	-73	52	-28
г. Ленинск Leninsk Municipality	48	-48	38	-64	12	-84	66	-8
Северно-Казахстанская North Kazakhstanskaya	47	-49	55	-47	37	-51	30	-59
Кустанайская Koustaniskaya	46	-50	53	-49	42	-45	31	-57
Талдыкурганская Taldykourganskaya	43	-54	53	-49	27	-64	28	-62
Тургайская Tourgaiskaya	33	-64	44	-57	21	-72	14	-81

CIRCULATORY SYSTEM MORBIDITY RATES by SUBCATEGORY
Kazakhstan, 1993

	Cases per 1000 population			
	Total Population	Adults 18 and older	Teens 15-17 years	Children 0-14 years
(390-459) Болезни системы кровообращения Circulatory System	60	92	12	5
(390-392) Ревматизм в активной фазе, включая хорею Acute rheumatic fever	1	1	1	1
(393-398) Хронические ревматические заболевания сердца Chronic rheumatic heart disease	5	6	4	1
(401-404) Гипертоническая болезнь Essential Hypertension; Hypertensive renal and he	12	19	1	0
(410-414) (401-404) Ишемическая болезнь сердца с гипертонической боле Ischemic heart disease with hypertension	6	9		
(410-414) Ишемическая болезнь сердца без упоминания о гипер Ischemic heart disease without hypertension	10	16		
(410) Острый инфаркт миокарда Acute Myocardial Infarction	1	1		
(411) Другие острые и подострые формы ишемической болез Other acute / subacute ischemic heart disease	0	1		
(413) Стенокардия Angina Pectoris	5	8		
(430-438) (401-404) Цереброваскулярные болезни с гипертонической боле Cerebrovascular Disease with hypertension	3	4		
(430-438) Цереброваску- лярные болезни без упоминания гипе Cerebrovascular Disease without hypertension	6	9		
(440.2; 443.0,1) Эндоартериит, тромбангиит облитерирующие Arterial Diseases of the extremities	1	1		

CIRCULATORY SYSTEM MORBIDITY RATES by OBLAST
Kazakhstan, 1993

	Cases / 1000 population							
	Total Population	% diff from natl rate	Adults (>=18 years)	% diff from natl rate	Teens (15-17 years)	% diff from natl rate	Children (0-14 years)	% diff from natl rate
г. Алматы Almaty Municipality	154	156	208	127	18	43	7	28
Восточно-Казахстанская East Kazakhstanskaya	82	37	119	30	14	13	4	-30
Карагандинская Karagandinskaya	74	23	105	15	8	-34	7	26
Западно-Казахстанская West Kazakhstanskaya	66	9	101	10	13	4	3	-40
Кокчетавская Kokchetauskaya	65	9	98	7	23	90	4	-19
Семипалатинская Semipalatinskaya	64	7	99	8	17	36	5	-5
респ. Казахстан - всего Rep. Kazakhstan - total	60		92		12		5	
Павлодарская Pavlodarskaya	58	-3	86	-6	14	17	5	-13
Акмолинская Acmolinskaya	57	-6	81	-11	12	1	8	52
Джамбылъская Dzhambylskaya	56	-7	90	-2	6	-50	6	15
Джезказганская Dzhezkazganskaya	51	-15	76	-17	16	27	11	114
Северно-Казахстанская North Kazakhstanskaya	49	-18	66	-28	14	13	15	180
Актюбинская Actubinskaya	49	-19	75	-19	15	22	6	10
Талдыкурганская Taldykourganskaya	47	-21	75	-19	13	9	5	-5
Мангыстауская Mangystauskaya	44	-27	69	-24	7	-43	2	-64
Кустанайская Koustaniskaya	44	-27	63	-31	8	-38	4	-22
Атырауская Atyrauskaya	42	-30	69	-24	8	-32	3	-38
Алматинская Almatinskaya	40	-33	63	-31	11	-10	3	-35
Кзыл-Ординская Kzyl-Ordinskaya	38	-36	66	-28	13	7	6	23
Южно-Казахстанская South Kazakhstanskaya	35	-42	60	-35	11	-9	2	-54
Тургайская Tourgaiskaya	33	-44	52	-44	10	-20	3	-40
г. Ленинск Leninsk Municipality	19	-68	20	-79	1	-93	21	307

INJURY AND POISONING MORBIDITY RATES by SUBCATEGORY
Kazakhstan, 1993

	Cases per 1000 population			
	Total Population	Adults 18 and older	Teens 15-17 years	Children 0-14 years
(800-999) Травмы и отравления Injury and Poisoning	58	70	50	34
(800-809) Переломы черепа, шеи и туловища Fracture of skull, neck, trunk	2	2	2	0
(810-819) Переломы костей верхней конечности Fracture of upper limb	5	5	4	4
(820-829) Переломы костей нижней конечности Fracture of lower limb	3	4	2	1
(830-848) Вывихи (без перелома костей), растяжения Dislocations; sprains	5	7	4	2
(850-854) Внутричерепные травмы (без травм с переломом чер Intracranial injury	2	3	3	1
(860-869) Травмы внутренних органов грудной и брюшной полос Internal injury of chest, abdomen, and pelvis	2	2	3	1
(870-897; 900-904; 910-939) Раны, повреждения кровеносных сосудов, поверхност Wounds, superficial injuries, contusions, crushin	31	38	27	18
(940-949) Ожоги Burns	3	4	3	3
(950-957) Травмы нервов и спинного мозга Injury to nerves and spinal cord	0	0	0	0
(960-995) Отравления лекарственными средствами, медикамента Poisoning, toxicity, other effects of external ca	1	1	1	1

NATIONAL CHANGE in MORBIDITY RATES by DISEASE
Kazakhstan, 1991-1993

	Cases per 1000 population in 1993 and % change from 1991 to 1993			
	Total Population	Adults 18 and older	Teens 15-17 years	Children 0-14 years
(001-999)				
Всего	928	938	705	947
All Categories	**2%**	**3%**	**25%**	**-1%**
(001-139)				
Инфекционные и паразитарные болезни	46	34	23	74
Infectious and Parasitic Diseases	**-7%**	**-5%**	**4%**	**-9%**
(140-239)				
Новообразования	16	24	1	1
Neoplasms	**15%**	**15%**	**74%**	**3%**
(240-279)				
Болезни эндокринной системы, расстройства питания, н	17	19	8	13
Endocrine, nutritional, metabolic, immunity	**0%**	**3%**	**-15%**	**-6%**
(280-289)				
Болезни крови и крове-творных органов	14	10	8	22
Blood and Blood-forming Organs	**20%**	**28%**	**83%**	**13%**
(290-319)				
Психические расстройства	35	46	32	13
Mental Disorders	**-10%**	**-10%**	**-11%**	**-16%**
(320-389)				
Болезни нервной системы ии органов чувств	99	108	102	81
Nervous system and sense organs	**6%**	**6%**	**25%**	**2%**
(390-459)				
Болезни системы кровообращения	60	92	12	5
Circulatory System	**2%**	**3%**	**2%**	**-24%**
(460-519)				
органов дыхания	322	223	287	527
Respiratory System	**2%**	**4%**	**33%**	**-1%**
(520-579)				
Болезни органов пищеварения	92	104	77	72
Digestive System	**5%**	**3%**	**33%**	**6%**
(580-629)				
Болезни мочеполовой системы	51	68	29	19
Genitourinary System	**12%**	**12%**	**50%**	**9%**
(630-676)				
Осложнения беременности, родов и послеродового перио	13	20	1	0
Pregnancy, Childbirth, Puerperium	**-3%**	**-3%**	**28%**	**-45%**
(680-709)				
Болезни кожи и подкожной клетчатки	52	49	53	59
Skin and Subcutaneous Tissue	**7%**	**2%**	**33%**	**13%**
(710-739)				
Болезни костно-мышечной системы и соединительной тка	45	67	15	8
Musculoskeletal System and Connective Tissue	**3%**	**2%**	**39%**	**8%**
(740-759)				
Врожденные аномалии (пороки развития)	3	1	5	7
Congenital Anomalies	**5%**	**10%**	**34%**	**1%**
(760-779)				
Отдельные состояния, возникшие в перинатальный перио	2			8
Conditions in the Perinatal Period	**66%**	**%**	**%**	**67%**
(780-799)				
Симптомы, признаки и неточно обозначенные состояния	3	3	2	3
Symptoms, Signs, and Ill-Defined Conditions	**-19%**	**-19%**	**-22%**	**-18%**
(800-999)				
Травмы и отравления	58	70	50	34
Injury and Poisoning	**-4%**	**-2%**	**4%**	**-14%**

CHANGE in OVERALL MORBIDITY RATES by OBLAST
Kazakhstan, 1991-1993

	Cases per 1000 population in 1993 and % Change from 1991 to 1993			
	Total Population	Adults 18 and older	Teens 15-17 years	Children 0-14 years
Респ. Казахстан	928	938	705	947
Republic of Kazakhstan	**2%**	**3%**	**25%**	**-1%**
Акмолинская	878	878	668	918
Acmolinskaya	**0%**	**5%**	**32%**	**-10%**
Актюбинская	804	812	529	837
Actubinskaya	**4%**	**4%**	**46%**	**1%**
Алматинская	816	763	725	927
Almatinskaya	**1%**	**-2%**	**18%**	**3%**
Атырауская	725	734	325	778
Atyrauskaya	**2%**	**10%**	**30%**	**-8%**
Восточно-Казахстанская	1227	1192	1051	1342
East Kazakhstanskaya	**4%**	**4%**	**41%**	**1%**
Джамбылъская	868	859	456	954
Dzhambylskaya	**0%**	**-5%**	**25%**	**6%**
Джезказганская	957	1085	602	784
Dzhezkazganskaya	**6%**	**13%**	**50%**	**-11%**
Западно-Казахстанская	1039	1092	733	985
West Kazakhstanskaya	**5%**	**3%**	**5%**	**10%**
Карагандинская	1173	1158	963	1250
Karagandinskaya	**0%**	**-1%**	**56%**	**-2%**
Кзыл-Ординская	809	807	470	870
Kzyl-Ordinskaya	**3%**	**3%**	**13%**	**0%**
Кокчетавская	920	1005	626	795
Kokchetauskaya	**17%**	**18%**	**29%**	**12%**
Кустанайская	712	676	635	807
Koustaniskaya	**-7%**	**-10%**	**14%**	**-3%**
Мангыстауская	868	866	606	914
Mangystauskaya	**-11%**	**-1%**	**-11%**	**-24%**
Павлодарская	1009	993	864	1066
Pavlodarskaya	**-1%**	**-4%**	**24%**	**1%**
Северно-Казахстанская	764	708	695	907
North Kazakhstanskaya	**-4%**	**-5%**	**30%**	**-6%**
Семипалатинская	1140	1127	996	1193
Semipalatinskaya	**2%**	**2%**	**6%**	**-1%**
Талдыкурганская	697	769	538	597
Taldykourganskaya	**-11%**	**-4%**	**2%**	**-26%**
Тургайская	506	517	420	502
Tourgaiskaya	**1%**	**5%**	**-16%**	**-2%**
Южно-Казахстанская	575	564	405	619
South Kazakhstanskaya	**-1%**	**-8%**	**25%**	**9%**
Алматы	1661	1594	1786	1853
Almaty Municipality	**21%**	**24%**	**57%**	**9%**
Ленинск	880	652	342	1258
Leninsk Municipality	**-10%**	**-3%**	**-20%**	**-24%**
Респ. Учреждения				
Republic Institutions	**%**	**%**	**%**	**%**

CHANGE in PERINATAL MORBIDITY RATES by OBLAST
Kazakhstan, 1991-1993

	Cases per 1000 population in 1993 and % Change from 1991 to 1993			
	Total Population	Adults 18 and older	Teens 15-17 years	Children 0-14 years
Респ. Казахстан	2			8
Republic of Kazakhstan	**66%**	**%**	**%**	**67%**
Акмолинская	4			15
Acmolinskaya	**24%**	**%**	**%**	**29%**
Актюбинская	3			8
Actubinskaya	**158%**	**%**	**%**	**163%**
Алматинская	3			8
Almatinskaya	**191%**	**%**	**%**	**191%**
Атырауская	3			7
Atyrauskaya	**-30%**	**%**	**%**	**-31%**
Восточно-Казахстанская	4			14
East Kazakhstanskaya	**105%**	**%**	**%**	**103%**
Джамбылъская	4			10
Dzhambylskaya	**170%**	**%**	**%**	**172%**
Джезказганская	1			2
Dzhezkazganskaya	**404%**	**%**	**%**	**399%**
Западно-Казахстанская	1			3
West Kazakhstanskaya	**10%**	**%**	**%**	**13%**
Карагандинская	1			3
Karagandinskaya	**18%**	**%**	**%**	**23%**
Кзыл-Ординская	3			7
Kzyl-Ordinskaya	**272%**	**%**	**%**	**254%**
Кокчетавская	3			10
Kokchetauskaya	**129%**	**%**	**%**	**131%**
Кустанайская	2			8
Koustaniskaya	**302%**	**%**	**%**	**325%**
Мангыстауская	5			16
Mangystauskaya	**-33%**	**%**	**%**	**-32%**
Павлодарская	3			9
Pavlodarskaya	**33%**	**%**	**%**	**35%**
Северно-Казахстанская	2			6
North Kazakhstanskaya	**320%**	**%**	**%**	**325%**
Семипалатинская	2			5
Semipalatinskaya	**41%**	**%**	**%**	**40%**
Талдыкурганская	2			6
Taldykourganskaya	**337%**	**%**	**%**	**329%**
Тургайская	3			8
Tourgaiskaya	**1059**	**%**	**%**	**1123**
Южно-Казахстанская	0			1
South Kazakhstanskaya	**6%**	**%**	**%**	**7%**
Алматы	6			24
Almaty Municipality	**35%**	**%**	**%**	**38%**
Ленинск	1			1
Leninsk Municipality	**5%**	**%**	**%**	**-17%**
Респ. Учреждения				
Republic Institutions	**%**	**%**	**%**	**%**

CHANGE in ANEMIA MORBIDITY RATES by OBLAST
Kazakhstan, 1991-1993

	Cases per 1000 population in 1993 and % Change from 1991 to 1993			
	Total Population	Adults 18 and older	Teens 15-17 years	Children 0-14 years
Респ. Казахстан	12	8	6	19
Republic of Kazakhstan	**40%**	**56%**	**112%**	**27%**
Акмолинская	6	4	3	13
Acmolinskaya	**29%**	**32%**	**100%**	**29%**
Актюбинская	9	5	6	18
Actubinskaya	**54%**	**72%**	**104%**	**47%**
Алматинская	16	13	8	22
Almatinskaya	**32%**	**31%**	**63%**	**32%**
Атырауская	21	17	12	28
Atyrauskaya	**-13%**	**-29%**	**44%**	**10%**
Восточно-Казахстанская	14	9	7	28
East Kazakhstanskaya	**38%**	**84%**	**195%**	**12%**
Джамбылъская	7	5	2	12
Dzhambylskaya	**21%**	**76%**	**35%**	**0%**
Джезказганская	9	6	6	15
Dzhezkazganskaya	**48%**	**225%**	**136%**	**2%**
Западно-Казахстанская	10	7	4	16
West Kazakhstanskaya	**44%**	**59%**	**70%**	**33%**
Карагандинская	7	4	2	13
Karagandinskaya	**22%**	**58%**	**%**	**4%**
Кзыл-Ординская	45	25	18	77
Kzyl-Ordinskaya	**63%**	**93%**	**159%**	**45%**
Кокчетавская	7	7	4	9
Kokchetauskaya	**4%**	**22%**	**14%**	**-16%**
Кустанайская	4	2	1	9
Koustaniskaya	**9%**	**6%**	**16%**	**15%**
Мангыстауская	18	12	10	32
Mangystauskaya	**2%**	**-1%**	**236%**	**2%**
Павлодарская	8	7	5	12
Pavlodarskaya	**46%**	**63%**	**85%**	**29%**
Северно-Казахстанская	8	5	5	16
North Kazakhstanskaya	**97%**	**145%**	**77%**	**75%**
Семипалатинская	17	12	10	28
Semipalatinskaya	**92%**	**59%**	**65%**	**136%**
Талдыкурганская	11	10	6	15
Taldykourganskaya	**59%**	**161%**	**34%**	**8%**
Тургайская	4	4	1	5
Tourgaiskaya	**87%**	**201%**	**493%**	**28%**
Южно-Казахстанская	16	16	9	19
South Kazakhstanskaya	**40%**	**68%**	**231%**	**13%**
Алматы	7	6	3	13
Almaty Municipality	**62%**	**115%**	**234%**	**20%**
Ленинск	4	2	0	7
Leninsk Municipality	**90%**	**45%**	**%**	**97%**
Респ. Учреждения				
Republic Institutions	**%**	**%**	**%**	**%**

CHANGE in NEOPLASM MORBIDITY RATES by OBLAST
Kazakhstan, 1991-1993

	Cases per 1000 population and % change from 1991 to 1993			
	Total Population	Adults 18 and older	Teens 16-17 years	Children 0-14 years
Респ. Казахстан	16	24	1	1
Republic of Kazakhstan	**15%**	**15%**	**74%**	**3%**
Акмолинская	13	19	1	1
Acmolinskaya	**1%**	**0%**	**-4%**	**-22%**
Актюбинская	14	22	1	1
Actubinskaya	**14%**	**14%**	**35%**	**1%**
Алматинская	13	20	1	1
Almatinskaya	**32%**	**32%**	**37%**	**19%**
Атырауская	11	18	0	1
Atyrauskaya	**48%**	**62%**	**-27%**	**-59%**
Восточно-Казахстанская	31	45	2	2
East Kazakhstanskaya	**49%**	**48%**	**95%**	**91%**
Джамбылъская	13	21	1	1
Dzhambylskaya	**0%**	**-2%**	**468%**	**69%**
Джезказганская	40	65	1	1
Dzhezkazganskaya	**333%**	**343%**	**-52%**	**176%**
Западно-Казахстанская	16	25	0	1
West Kazakhstanskaya	**-6%**	**-6%**	**-33%**	**-30%**
Карагандинская	14	20	1	2
Karagandinskaya	**-19%**	**-21%**	**297%**	**25%**
Кзыл-Ординская	6	11	0	0
Kzyl-Ordinskaya	**-7%**	**-5%**	**69%**	**-15%**
Кокчетавская	18	28	1	1
Kokchetauskaya	**87%**	**88%**	**87%**	**44%**
Кустанайская	11	16	1	1
Koustaniskaya	**-10%**	**-12%**	**47%**	**-31%**
Мангыстауская	7	12	2	1
Mangystauskaya	**18%**	**18%**	**10%**	**3%**
Павлодарская	21	31	1	1
Pavlodarskaya	**4%**	**2%**	**102%**	**40%**
Северно-Казахстанская	20	29	1	2
North Kazakhstanskaya	**6%**	**5%**	**129%**	**12%**
Семипалатинская	20	32	2	1
Semipalatinskaya	**6%**	**6%**	**81%**	**-9%**
Талдыкурганская	21	34	1	0
Taldykourganskaya	**0%**	**1%**	**-13%**	**-32%**
Тургайская	11	17	0	0
Tourgaiskaya	**54%**	**54%**	**19%**	**-51%**
Южно-Казахстанская	4	6	1	0
South Kazakhstanskaya	**-18%**	**-19%**	**297%**	**-35%**
Алматы	26	34	2	3
Almaty Municipality	**12%**	**11%**	**65%**	**7%**
Ленинск	10	17	0	3
Leninsk Municipality	**22%**	**48%**	**63%**	**-13%**
Респ. Учреждения				
Republic Institutions	**%**	**%**	**%**	**%**

CHANGE in NEOPLASM FIRST LIFETIME ONSET RATES by OBLAST
Kazakhstan, 1991-1993

First Occurrences per 1000 population in 1993 and % Change from 1991

	Total Population	Adults 18 and older	Teens 15-17 years	Children 0-14 years
Респ. Казахстан Republic of Kazakhstan	4 **6%**	6 **6%**	1 **50%**	1 **-2%**
Акмолинская Acmolinskaya	3 **-8%**	4 **-6%**	0 **-63%**	1 **-25%**
Актюбинская Actubinskaya	4 **12%**	5 **12%**	0 **16%**	1 **12%**
Алматинская Almatinskaya	4 **65%**	7 **67%**	1 **66%**	0 **3%**
Атырауская Atyrauskaya	3 **-2%**	5 **9%**	0 **-100**	0 **-66%**
Восточно-Казахстанская East Kazakhstanskaya	8 **6%**	12 **4%**	1 **121%**	1 **115%**
Джамбылъская Dzhambyiskaya	3 **-15%**	5 **-17%**	0 **84%**	0 **59%**
Джезказганская Dzhezkazganskaya	7 **84%**	11 **85%**	0 **-44%**	0 **190%**
Западно-Казахстанская West Kazakhstanskaya	4 **-1%**	7 **-1%**	0 **-40%**	0 **-18%**
Карагандинская Karagandinskaya	4 **-8%**	5 **-13%**	1 **461%**	1 **75%**
Кзыл-Ординская Kzyl-Ordinskaya	1 **-54%**	2 **-53%**	0 **15%**	0 **-54%**
Кокчетавская Kokchetauskaya	5 **52%**	7 **51%**	1 **71%**	0 **94%**
Кустанайская Koustaniskaya	3 **-22%**	4 **-22%**	0 **70%**	1 **-39%**
Мангыстауская Mangystauskaya	3 **99%**	5 **109%**	2 **14%**	0 **-14%**
Павлодарская Pavlodarskaya	5 **3%**	8 **2%**	1 **122%**	0 **1%**
Северно-Казахстанская North Kazakhstanskaya	6 **0%**	9 **-1%**	1 **377%**	1 **10%**
Семипалатинская Semipalatinskaya	5 **3%**	7 **3%**	1 **77%**	1 **-8%**
Талдыкурганская Taldykourganskaya	5 **10%**	8 **14%**	0 **-54%**	0 **-50%**
Тургайская Tourgaiskaya	3 **105%**	4 **103%**	0 **90%**	0 **-13%**
Южно-Казахстанская South Kazakhstanskaya	1 **13%**	2 **16%**	0 **-45%**	0 **-48%**
Алматы Almaty Municipality	7 **7%**	9 **7%**	1 **80%**	1 **-16%**
Ленинск Leninsk Municipality	3 **17%**	4 **41%**	0 **-100**	2 **-5%**
Респ. Учреждения Republic Institutions	**%**	**%**	**%**	**%**

ATTACHMENT 2: DATA CONSISTENCY ISSUES

Several questions regarding the data have arisen. These issues can be resolved by consulating with the Ministry.

A. POPULATION. Population figures for 1993 were taken from the Ministry's Annual Statistics report. Those for 1991 and 1992 were taken from hand lists prepared by the ministry which included several types of estimates. The Ministry should be asked to review the population figures used in the morbidity system to verify that they are correct and consistent for use as denominators for the population-based rates.

B. DISEASE CODES. One disease code used in the machine readable data set supplied by the ministry has not been defined. It is code 119, which is only used to record adult diseases. A small number of cases for this code appear for 1992 and 1993, but it is not defined on Form 12, which the MoH uses to collect morbidity data. (The sequence skips from 11.8 to 11.0 on the form.)

C. CODES FOR TEENAGE CASES AND FIRST LIFETIME OCCURRENCES. The teen (15-17) portion of Form 12 has six columns, instead of three, as do the adult and child sections. In converting the data for 1992 and 1993, it was assumed that columns 1, 3, and 5 on the teen form correspond to columns 1, 2, and 3 on the adult and child forms.

D. INCOMPLETE DATA FOR 1991. Data for several oblasts was incomplete or inconsistent.

1. Almaty Oblast: the total reported for teen cases does not match the sum of cases for all categories.
2. Kzyl-Orda: Total for teens for genitourinary system is missing. The total reported for adult first lifetime occurrences does not match the sum of first occurences for all categories.
3. Mangystauskaya: Total for skin and subcutaneous tissue missing for children.
4. Tourgaiskaya: page 4 of children's form blank.